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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,850	11/18/2003	Shinji Imai	Q78573	3707

23373 7590 04/06/2004

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EXAMINER	
LEE, SHUN K	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/714,850	IMAI ET AL.	
	Examiner	Art Unit	
	Shun Lee	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31,34 and 59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31,34 and 59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/534,204.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/534,204, filed on 24 March 2000.

Drawings

2. The drawings were received on 18 November 2003. These drawings are unacceptable. It is noted that the 18 November 2003 preliminary amendment contains replacement drawing sheets (and a marked-up copy) which fails to comply with 37 CFR 1.121(d) since any changes to an application drawing must be in compliance with § 1.84 and must be submitted on a replacement sheet of drawings which shall be an attachment to the amendment document and, in the header, labeled "Replacement Sheet" and the marked-up copy must be clearly labeled as "Annotated Marked-up Drawings". Further, while two different versions of unlabeled Fig. 3 were submitted, both appear to be marked-up differently.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karellas (US 5,864,146) in view of Itoh *et al.* (US 4,597,012).

In regard to claim **31**, Karellas discloses (Fig. 37) an image read-out method of obtaining an image signal bearing thereon image information by use of a stimulable phosphor sheet (1306) having a layer of stimulable phosphor which emits stimulated emission in a wavelength range of not longer than 500 nm (column 35, lines 1-8) in proportion to the stored energy of radiation upon exposure to stimulating light (1310) in a wavelength range of not shorter than 600 nm (column 34, lines 54-63) and a solid image sensor (1312) having a photoconductive material layer whose major component

is a-Se (*i.e.*, amorphous selenium; column 40, lines 1-9) which exhibits electric conductivity upon exposure to the stimulated emission from the stimulable phosphor sheet (1306) and by scanning (column 34, lines 54-56) with stimulating light (1310) a stimulable phosphor sheet (1306) which has been exposed to radiation and has stored thereon an image, causing the photoconductive material layer to be exposed to stimulated emission emitted from the stimulable phosphor sheet (1306) upon exposure to the stimulating light (1310), and using a solid image sensor (1312) whose photoconductive material layer also exhibits electric conductivity upon exposure to recording light bearing thereon image information or momentary light (*i.e.*, prompt scintillation; column 37, lines 8-21) emitted from the stimulable phosphor layer upon exposure to the recording light.

While Karellas also discloses (column 37, lines 8-21) obtaining a preliminary read-out image signal and an image signal by pixelated readout (column 40, lines 1-9) of the amorphous selenium image sensor, the method of Karellas lacks an explicit description that the image sensor comprises a pair of electrode layers on opposite sides of the photoconductive material layer with one electrode layer divided into a stripe electrode comprising a first row of line electrode elements and the other electrode layer divided into a stripe electrode comprising a second row of line electrode elements each extending to intersect the line electrode elements of the first row and that the pixelated readout comprises detecting by the line electrode elements of the pair of electrode layers the electric charges generated in the photoconductive material layer upon exposure to the stimulated emission, the recording light, or the momentary light while

simultaneously applying an electric field. However, pixelated readout of photoconductive image sensors is known in the art. For example, Itoh *et al.* teach (Figs. 2 and 3) that a photoconductive image sensor comprises a pair of electrode layers on opposite sides of the photoconductive material layer (3) with one electrode layer divided into a stripe electrode comprising a first row of line electrode elements (2) and the other electrode layer divided into a stripe electrode comprising a second row of line electrode elements (5) each extending to intersect the line electrode elements of the first row and that the pixelated readout (column 6, lines 25-45) comprises detecting by the line electrode elements of the pair of electrode layers the electric charges generated in the photoconductive material layer upon exposure to light while simultaneously applying an electric field (*i.e.*, supplying a voltage). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a conventional image sensor (*i.e.*, comprising a pair of electrode layers on opposite sides of the photoconductive material layer with one electrode layer divided into a stripe electrode comprising a first row of line electrode elements and the other electrode layer divided into a stripe electrode comprising a second row of line electrode elements each extending to intersect the line electrode elements of the first row) as the image sensor in the method of Karellas and that pixelated readout occurs by detecting with the line electrode elements of the pair of electrode layers the electric charges generated in the photoconductive material layer upon exposure to light while simultaneously applying an electric field (*i.e.*, supplying a voltage), in order to obtain a preliminary read-out image

signal and/or an image signal by pixelated readout of the amorphous selenium image sensor as taught by Karellas (column 37, lines 8-21; column 40, lines 1-9).

In regard to claim **34**, Karellas discloses (Fig. 37) an image read-out system comprising a stimulating light source (1302) which emits stimulating light (1310), a stimulating light scanning means (column 34, lines 54-56) which causes the stimulating light (1310) emitted from the stimulating light source (1302) to scan a stimulable phosphor sheet (1306) having a layer of stimulable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to the stimulating light (1310), a solid image sensor (1312) having a photoconductive material layer (*e.g.*, amorphous selenium; column 40, lines 1-9) which exhibits electric conductivity upon exposure to the stimulated emission from the stimulable phosphor sheet (1306), and an image signal obtaining means (column 40, lines 1-9) which detects electric charges generated in the photoconductive material layer of the solid image sensor (1312) when the stimulable phosphor sheet (1306) is exposed to the stimulating light (1310) and stimulated emission emitted from the stimulable phosphor sheet (1306) impinges upon the photoconductive material, and detects an image signal representing an image stored on the stimulable phosphor sheet (1306), the photoconductive material layer of the solid image sensor (1312) also exhibits electric conductivity upon exposure to recording light bearing thereon image information or momentary light (*i.e.*, prompt scintillation; column 37, lines 8-21) emitted from the stimulable phosphor layer (1306) upon exposure to the recording light, and there is provided a preliminary read-out image signal obtaining means (column 37, lines 8-21) which obtains a preliminary read-out

image signal bearing thereon image information by detecting charges when the recording light or the momentary light impinges upon the photoconductive material layer.

While Karellas also discloses (column 37, lines 8-21) obtaining a preliminary read-out image signal and an image signal by pixelated readout (column 40, lines 1-9) of the amorphous selenium image sensor, the system of Karellas lacks that the image sensor comprises a pair of electrode layers on opposite sides of the photoconductive material layer with one electrode layer divided into a stripe electrode comprising a first row of line electrode elements and the other electrode layer divided into a stripe electrode comprising a second row of line electrode elements each extending to intersect the line electrode elements of the first row and that the preliminary read-out image signal obtaining means (*i.e.*, pixelated readout) comprises detecting by the line electrode elements of the pair of electrode layers the electric charges generated in the photoconductive material layer upon exposure to the stimulated emission, the recording light, or the momentary light with an electric field applied by an electric voltage imparting means. However, pixelated readout of photoconductive image sensors is known in the art. For example, Itoh *et al.* teach (Figs. 2 and 3) that a photoconductive image sensor comprises a pair of electrode layers on opposite sides of the photoconductive material layer (3) with one electrode layer divided into a stripe electrode comprising a first row of line electrode elements (2) and the other electrode layer divided into a stripe electrode comprising a second row of line electrode elements (5) each extending to intersect the line electrode elements of the first row and that the pixelated readout (column 6, lines

25-45) comprises detecting by the line electrode elements of the pair of electrode layers the electric charges generated in the photoconductive material layer upon exposure to light while simultaneously applying an electric field (*i.e.*, supplying a voltage). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a conventional image sensor (*i.e.*, comprising a pair of electrode layers on opposite sides of the photoconductive material layer with one electrode layer divided into a stripe electrode comprising a first row of line electrode elements and the other electrode layer divided into a stripe electrode comprising a second row of line electrode elements each extending to intersect the line electrode elements of the first row) as the image sensor in the system of Karellas and that pixelated readout occurs by detecting with the line electrode elements of the pair of electrode layers the electric charges generated in the photoconductive material layer upon exposure to light while simultaneously applying an electric field (*i.e.*, supplying a voltage with an electric voltage imparting means), in order to obtain a preliminary read-out image signal and/or an image signal by pixelated readout of the amorphous selenium image sensor as taught by Karellas (column 37, lines 8-21; column 40, lines 1-9).

7. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karellas (US 5,864,146) in view of Itoh *et al.* (US 4,597,012) as applied to claim 31 above, and further in view of Takahashi *et al.* (US 5,059,794).

In regard to claim **59** which is dependent on claim 31, the modified method of Karellas lacks that the electric field generates an avalanche amplification effect in the photoconductive material layer. Takahashi *et al.* teach (column 2, lines 18-22 and 47-

58; column 6, lines 15-39) to apply an electric field to an a-Se photoconductive material layer sufficient for avalanche amplification in order to increase optical detection sensitivity when using a laser stimulable phosphor. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to apply an electric field in the modified method of Karellas sufficient for avalanche amplification, in order to increase optical detection sensitivity as taught by Takahashi *et al.*

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/CONSTANTINE HANNAHER/

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